

**PATENT**  
**Attorney Docket No. 10517/210**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANTS : Mayasoshi IWASE, *et al.*  
SERIAL NO. : To Be Assigned  
FILED : December 9, 2003  
FOR : FUEL CELL AND SEPARATOR FOR THE SAME  
GROUP ART UNIT : 1745 (Anticipated)  
EXAMINER : Julian Mercado (Anticipated)

**Mail Stop: Patent Application**  
**Commissioner For Patents**  
P.O. Box 1450  
Alexandria, VA 22313-1450

**PRELIMINARY AMENDMENT**

SIR:

Prior to the examination of the above-identified patent application, please enter the following amendments.

**IN THE SPECIFICATION:**

At page 1, between the title and "Incorporation by Reference" please insert the following:

-- Cross Reference to Related Applications

This is a continuation of U.S. Patent Application Serial No. 09/665,899, filed September 20, 2000, which is a divisional of U.S. Patent Application Serial No. 09/216,778 filed December 18, 1998, which issued as U.S. Patent No. 6,245,453 on June 12, 2001. --

**IN THE CLAIMS:**

Please enter the following amendments to the claims.

Claims 1-19 (Cancelled).

20. (New) A fuel cell comprising:
- a joint body produced by interposing an electrolyte member between a pair of electrodes;
  - a separator which holds the joint body;
  - a rib portion which divides an area at a bottom of the separator into a plurality of regions and, along with the bottom of the separator, forms a passage for fluid which flows through the separator, wherein each of the plurality of regions extends substantially across a width of the separator and communicate with each other; and
  - a gas supply inlet which connects to the fluid passage and supplies a gas to the fluid passage, wherein the gas supply inlet is located so that the gas enters into a first of the plurality of regions in a direction parallel to a longitudinal axis of the first region.
21. (New) The fuel cell of claim 20, wherein the passage defines a serpentine path for the fluid.
22. (New ) The fuel cell of claim 21, wherein the rib portion comprises a key-like rib array formed in plural on the bottom of the separator.
23. (New) The fuel cell of claim 20, wherein the passage subdivides along a flow direction of the fluid which flows through a separator into a plurality of sub-passages, the sub-passages converging into a single passage at an outlet of the passage, wherein a maximum number of sub-passages are provided at a predetermined distance from the gas supply inlet based on a variation curve of a total fluid amount of the fluid which flows through the separator.

24. (New) The fuel cell of claim 20, wherein the fuel cell is configured such that an electrode reaction is activated on an entire cathode surface along the passage.
25. (New) The fuel cell of claim 20, wherein the passage is configured such that a sectional area defined thereby changes as a function of a variation curve of a total fluid amount of the fluid which flows through the separator.
26. (New) The fuel cell of claim 24, wherein the bottom of the separator is configured such that a sectional area defined by the passage is proportional to a variation curve of a total fluid amount of the fluid which flows through the separator.
27. (New) The fuel cell of claim 24, wherein the rib portion is configured such that a sectional area defined by the passage is proportional to a variation curve of a total fluid amount of the fluid which flows through the separator.
28. (New) The fuel cell of claim 24, wherein the rib portion is configured such that a width of the passage for fluid is widest in a linear portion of the passage including at a predetermined distance from the gas supply inlet based on a variation curve of a total fluid amount of the fluid which flows through the separator.
29. (New) The fuel cell of claim 26, wherein the bottom of the separator is configured such that a depth of the passage increases gradually along a direction of flow of the fluid which flows through the separator, reaches its deepest part at a predetermined distance from the gas supply inlet based on the variation curve of the total fluid amount, and decreases from the deepest part to an outlet of the passage.
30. (New) The fuel cell of claim 27, wherein the rib portion is configured such that a width of the passage increases gradually along a direction of flow of the fluid which flows through the separator, reaches its widest part at a predetermined distance from

the gas supply inlet based on the variation curve of the total fluid amount, and decreases from the widest part to an outlet of the passage.

31. (New) The fuel cell of claim 28, wherein a first linear portion of the passage has a first width, a second linear portion of the passage including a the predetermined distance from the gas supply inlet based on the variation curve of the total fluid amount has a second width larger than the first width, and a third linear portion of the passage has a third width smaller than the second width.
32. (New) The fuel cell of claim 20, wherein surfaces defining the passage downstream of a location at a predetermined distance from the gas supply inlet based on the variation curve of the total fluid amount are treated hydrophilically.
33. (New) The fuel cell of claim 32, wherein a hydrophilic material is applied to the surfaces.
34. (New) The fuel cell of claim 33, wherein the hydrophilic material includes polyacrylamide.

**REMARKS**


Claims 1-19 have been cancelled. New claims 20-34 are currently pending. The specification has been amended to include a reference to the parent applications of this instant continuation application.

The Commissioner is hereby authorized to charge any fees and credit any overpayments associated with this filing to Kenyon & Kenyon Deposit Account No. 11-0600.

The Examiner is invited to contact the undersigned at (202) 220-4296 to discuss any matter concerning this application.

Respectfully submitted,

Dated: 12-09-03

  
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